



WELD 1300

Division: Career and Technical Education

Department: Welding Technology

Course: WELD 1300

Title: Advanced Arc Welding

Catalog Description:

This course will cover preventive maintenance for welding equipment, proper service, and troubleshooting of portable engine driven welders and electric powered welding machines. Welding practice is continued with emphasis on multiple pass welding, V groove welding, and pipe welding. Qualification tests must be completed for flat, horizontal, vertical, and overhead positions to complete the course.

General Education Requirements: N/A

Semesters Offered: TBA

Credit/Time Requirement: Credit: 8; Lecture: 3; Lab: 15

Clock/Hour Requirements: 270

Offered for Non-Credit: No

Prerequisites: WELD 1020

Corequisites: WELD 1310

Justification:

This course was approved by our program advisory committee. This course and WELD 1250 are comparable to UVSC 2300. Qualification procedures are according to American Welding Society standards.

Student Learning Outcomes:

Upon successful completion, students will be able to:

- demonstrate safe shop practices while working with welding equipment
- have knowledge of alternating current circuits
- understand how an alternating current (AC) generator works
- complete all V groove welding projects
- complete all pipe welding projects
- complete all multiple pass projects
- pass a four position American Society of Mechanical Engineers (ASME) American Welding Society (AWS) test.

Content:

Course objectives will be accomplished by providing students with learning experiences in the following subject areas:

- proper safety techniques

- operation of portable welding machines
- pipe welding
- multiple pass welding
- welder qualifications testing.

General Education Outcomes:

6) Apply computational skills to a variety of contexts.

Students will perform measurement, design, and fabrication functions as they pertain to laboratory experiences and welding projects. Students must be familiar with basic computational functions.

7) Apply scientific reasoning to a variety of contexts.

Students will understand the structural changes that take place in ferrous and non-ferrous materials during the welding process.

9) Respond with informed sensitivity to an artistic work or experience.

Students will visually inspect weld quality for appearance, uniformity, and consistency. Professional welding is judged heavily on the aesthetic aspect.

Key Performance Indicators:

In class:

- The students' knowledge and skills are tested through assignments, tests and quizzes. Assignments are worth 40%-50%, written tests are 30%-40%, and quizzes are 10%-20% of the total grade.

Following class:

- The students will demonstrate competencies learned in subsequent courses and on the job.

Representative Text and/or Supplies:

- Larry Jeffus, *Welding Principles and Applications*, current edition, Delmar Publishers.

Optimum Class Size: 10

Maximum Class Size: 20

Signatures:

I hereby submit this course syllabus:

Alan Palmer, M. Ed., Associate Professor

I hereby find this course consistent with the goals and resources of the Welding Technology Department:

Alan Palmer, M. Ed., Associate Professor, Chair

I hereby find this course consistent with the goals and resources of the Career and Technical Education Division:

Michael P. Medley, MBA, Assistant Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)